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REPORT OF THE ECONOMIC AND SOCIAL COUNCIL

Letter dated 25 March 1996 from the Permanent Representative of Brazil to the United Nations addressed to the Secretary-General

I have the honour to transmit herewith the report of the Interregional Seminar on the Role of Public Administration in Developing Infrastructure and Protecting the Environment (see annex).

The Division of Public Administration and Development Management of the Department for Development Support and Management Services of the Secretariat convened the seminar at Rio de Janeiro, co-organized with Brazil, through the Ministry of Environment, Water Resources and the Legal Amazon, the Ministry of Federal Public Administration and Reform of the State and the Getulio Bargas Foundation in cooperation with the FGV/Brazilian School of Public Administration. It was supported by the Government of Brazil as a contribution to the activities relating to the work of the General Assembly at its resumed session on public administration and development.

I should be grateful if you would have the text of the present letter and its annex circulated as a document of the General Assembly, under agenda item 12.

(Signed) Celso L. N. AMORIM
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ANNEX

Report of the Interregional Seminar on the Role of Public Administration in Developing Infrastructure and Protecting the Environment

Rio de Janeiro, Brazil, 6-8 March 1996

## INTRODUCTION

1. General Assembly resolution 49/136 (28 February 1995) emphasized that Governments and public administrations have new responsibilities for sustainable development, including protecting the environment. In preparation for the Resumed 50th Session of the General Assembly, the Secretary-General, through the UN Division of Public Administration and Development Management, convened an Interregional Seminar on the Role of Public Administration in Developing Infrastructure and Protecting the Environment, in Rio de Janeiro, Brazil, 6-8 March 1996, co-organized with Brazil, through the Ministerio do Meio Ambiente, Recursos Hidricos e da Amazonia Legal (MMA), Ministerio da Administraçao Federal e da Reforma do Estado (MARE) and held at the Fundaçao Getulio Vargas (FGV) in cooperation with FGV/Escola Brasileira da Administraçao Publica.

2. The Seminar participants heard and discussed seven research papers on:

(a) Governance Issues in Developing Infrastructure and Protecting the Environment;

(b) Consensus Building, Civil Service and Civil Society: Coordination Mechanisms For Sustainable Development;

(c) Greener Government: The Incorporation of Environmental Considerations Into Policy-Forming and Administrative Processor;

(d) Organization and Management Challenges For Public Administrators Related to The Implementation of Environmental Management Strategies;

(e) Organizational and Managerial Challenges (in Sub-Sahara Africa);

(f) Market-Based Pollution Control Regulation: Implementing Economic Theory In The Real World; and

(g) Administrative Systems For Implementation, Evaluation and Feedback in Protection of the Environment.

3. The Seminar participants also studied "A Call To Action", the summary of Our Global Neighborhood, the report of the Commission on Global Governance, and discussed the report with Shridath Ramphal, Co-Chairman, and Manuel Camacho Solis and Celina do Amaral Peixoto, members of the Commission on Global Governance. Since there is a relationship between national and local public administration and international organization, the Seminar urged that the General Assembly closely study and act upon the Commission's report.

4. The Seminar discussion focused upon four challenges, namely:

(a) The challenge of how governance approaches and cultivates consensus building and participatory mechanisms relating specifically to infrastructure development and protecting the environment;

(b) The challenge of enhancement of strategic thinking and planning capacity of the public sector in the areas of infrastructure and the environment;

(c) Organizational and managerial challenges relating to the implementation of environmental strategies; and

(d) The critical challenges of implementation, evaluation and feedback systems for protecting the environment.

To successfully meet these challenges, the Seminar found that new models of public administration should be developed, stressing the partnership between public administration and civil society. It was stressed that improvement of public administration should focus on the total system as well as its specific component.

5. Participants included senior government officials, representatives of non-government organizations, commercial enterprises, academic institutions, from fourteen different States, and the United Nations Secretariat.

6. The Seminar was unanimous in its view that States and International Organizations must do much to strengthen the capacity of public administration to undertake sustainable development, and that unless public administration is enabled to be more efficient and effective, the objectives for environmental protection and sustainable development, as articulated in Agenda 21, cannot be achieved. (A proactive public administration is based on an organizational and managerial framework which views civil service as part of joint efforts of economic, social and political actors towards sustainable development. This framework includes elements such as:

- participatory procedures for policy planning, consensus building, implementation and monitoring;

- mechanisms for cross-sectorial policy planning and co-ordination in order to integrate environment-related aspects into infrastructure development and other relevant policy fields from the outset,

- increased transparency and accountability in order to ensure a more effective and efficient public administration.

7. Public administration reforms have to be geared at a better achievement of the principles in the Declaration of Rio de Janeiro and Agenda 21 on environmental sustainability, economic efficiency and social justice. In this context, since such tasks extend beyond each nation's borders, the Seminar recommended increased international and regional technical cooperation including support from the United Nations Division of Public Administration and Development Management in building and enhancing national public administrative capacity for sustainable development.

8. Public Administration cannot be expected to attain the reforms necessary to achieve sustainable development without widespread and substantial new programs for education and training, including the exchange of practical experiences and access to best management practices, such as "South-to-South" sharing of innovations. Such education and training should encourage the changing of mind - set of relevant actors and foster the capacity for strategic and catalytic leadership attaining sustainable development. This is a basic condition for the Seminar's recommendations.

9. Two further conditions are fundamental as well. A stable legal system, including the codification of principles of environment and development both internationally and within States, is required if all sectors are to work in a holistic and integrated manner. A stable economic system is required, in which new systems to restructure the presently unsustainable levels of public debt, both internationally and within nations, are designed; there is a need for procedures similar to the bankruptcy laws for commercial enterprises, to permit a new start where necessary in the public sector.

10. This Report of the Interregional Seminar covers three primary topics: First, "Policy and Governance Issues; Second, "Organizations and Management Challenges For Sustainable Government", and Third, "Implementation, Evaluation and Feedback Systems " .

## I. POLICY AND GOVERNANCE

11. The purpose of this session has been to examine the role that environmental considerations play in development of infrastructure and improving public administration. The world's belated acceptance of the need for development to be sustainable, and the long history of problems resulting from unsustainable projects, today necessitate that all infrastructure development be planned and implemented with great care, taking account of direct and indirect environmental consequences. Without this care, the resources spent on the development are wasted because any short-term gain is outweighed by long-term costs. However, sustainable development demands more than a technocratic or ritualistic assessment of environmental impact; the interests of all those affected and considerations of social equity need to be fully taken into account. Development must be socially as well as technically sustainable if it is to provide lasting benefits.

12. Accordingly, new administrative systems must be developed to meet this challenge. There must be transparency, so that the basis for decisions and the process of reaching them is clear to all. There must be accountability, so that the decision-makers have to justify their actions and can be held responsible. There must be mechanisms for review and monitoring independent of the decision-makers. Above all, the whole approach must be based on the participation of all those affected. As far as possible, progress should be made on the basis of consensus, and even when consensus is not achievable, the process of listening to different views and seeing what common ground exists will help to improve our decisions. The administrative and decision-making processes must become inclusive ones, with real participation by the public, by interest-groups, by all branches and levels of government, by the international community. Only in this way can we hope to avoid the disasters of the past and present and hope to achieve progress that is sustainable. The method of reaching decisions is as important as the final outcome, for respect for the views and interests of others, is a fundamental aspect of creating a sustainable future.

## POLITICAL ISSUES

13. The consideration of the role of the public administration can not be divorced from political issues or from the broader socio-economic context. Two particularly important points emerge:

(a) Different countries have very different conceptions of what the proper role of the public administration is. As a very simple example, should infrastructure projects be undertaken by the public or the private sector or should new forms of public/private partnership be developed?

(b) Without political will, public administration by itself can achieve little. Good administration can help to facilitate government, ensuring that the important issues which arise in society are addressed and that the best use is made of knowledge and expertise within and outside government. Unsuitable administration can provide obstacles to good government. However, it is not the task of administrators to make policy choices and only if there is a strong political will can sustainable development be achieved.

14. Sustainable development requires that governments adopt a new approach and cannot be achieved by government alone. Infrastructure policies must be inherently linked to environmental policies, and all be formed on a basis of transparency, accountability and broad participation.

## CURRENT FLAWS

15. Several features at present prevent the public administration from operating so as to maximize progress towards sustainability. These include, for instance, the following:

(a) There is a concentration on short-term costs and benefits at the expense of considering long-term impacts.

(b) The administration is organized into sectoral or functional ministries with poorly developed mechanisms for cooperation on inter-sectoral issues.

(c) Information is likewise gathered and analyzed in a non-integrated way, with an emphasis on the "vertical" flow of information within each sector rather than on sharing information.

(d) Even when inter-sectoral bodies do exist, e.g. at cabinet level, the tendency is still to rely on issues being raised and resolved on a sectoral basis.

(e) Centralized structures tend to be slow and unresponsive, offering little incentive for innovation by staff at middle or lower levels.

(f) In small island states particular difficulties are caused by lack of expertise which results in a small number of individuals having to deal with too broad a range of issues.

(g) The financial and technical resources may not be available for the administration to operate effectively.

(h) In some countries the public administration is almost incapable of making any progress as a result of deep-seated structural, financial, ethical and political weaknesses .

16. Generally public administration tends to interact too little with other sectors, preferring to impose solutions rather than developing through consensus. Consensus may be difficult to achieve but it can be initiated through various advisory and consultative bodies and benefits can be gained through process of seeking consensus and in the compromises and cooperation which can be achieved on the way.

## ADMINISTRATIVE STRUCTURES

17. Administrative structures must be chosen to further the progress towards sustainable development. These can be based on a wholly integrated approach or make use of dedicated bodies which can provide a clear focus for environmental expertise. The existence of a Ministry of the Environment or other such body should provide a strong voice within government and can establish a sufficiently strong or of skill and expertise. In order to succeed, such a body must have real power and strong links with all other branches of the government, at national and local levels. The responsibilities of such a body must reflect our awareness that care for the environment requires much more than protecting a few national parks. If the body has broader responsibilities it can ensure better integration of policy, but there may be internal problems of priorities and cooperation. There may need to be a separation of functions so that dealing with complaints and enforcement lies in the hands of a different body from that giving rise to the problem.

18. Identifying particular ministers or officials in other bodies to have environmental responsibilities may also be useful. All branches of the administration must share a commitment to sustainable development and to principles of transparency, accountability and wide participation.

## OBLIGATION TO ADDRESS ISSUES

19. Environmental factors should always be taken into account to ensure that unsustainable policies are avoided. At the very least, if environmentally harmful policies must be adopted, this should be the result of a conscious choice, avoiding or mitigating adverse environmental impacts wherever possible, and not because the environmental effects have been overlooked. Various mechanisms exist to ensure that environmental issues are considered within the administration before decisions are taken. The legislation governing particular functions can define environmental responsibilities, require that administrative bodies report on how they have taken the environmental consequences of policies into account, or establish procedures for environmental impact assessments not just of particular projects but of the underlying policies or programs as well. Consultation and the opportunity for others to participate in the policy-forming process are important features in ensuring that issues are identified and properly addressed.

## INFORMATION

20. Scientific information about the environment is of crucial importance.

21. At present such information is often not available and there is not the structural or technical capacity to acquire it. Three major points arise:

(a) What information should be collected? This is a vital preliminary issue as policies based on incomplete or misleading information will not succeed.

(b) Who is to be responsible for (and will pay for) the collection and analysis of basic environmental data? At present information tends to be gathered in a fragmented way, with various bodies collecting and analyzing data for their own narrow purposes. There is a need for a concerted effort to ensure that there is an easy exchange of information between all concerned. This is an area where there must be cooperation between the public administration, private and academic bodies, non-governmental organizations and international agencies. All can contribute to networks and exchanges at local, national and global levels, and can play a part in ensuring that bodies at all levels have capacity to gather and analyze the information which they need.

(c) Who is to have access to the information? The information which has been gathered must be used to support decisions and to ensure that infrastructure is developed in an appropriate way. It must form the basis of systems of evaluation and monitoring. The availability of information is also essential for accountability. Public access is essential if those outside the administration are going to be able to participate properly in policy-forming and monitoring processes.

## PARTICIPATION AND DECENTRALIZATION

22. A new attitude must be taken to policy formulation. This is not a task exclusively for a single body, but must be an inter-active process based on the involvement of many social actors, both within and outside government. These must be regarded not as outsiders, but as partners who can make a valuable contribution. Local government and local communities and social groups are particularly important, and their capacity to contribute fully must be enhanced. Much can be learnt by looking at where there has been success at local levels. There are many instances where major local achievements could be studied and copied elsewhere. Those outside government can participate through advisory bodies or through forms of self-regulation, e.g. through adhering to internationally recognized management standards. Participation on environmental issues will mirror broader political participation, and views may have to be actively sought from several sectors of the community.

## ACHIEVING CHANGE

23. Change and reform of public administration will be demanded by rising levels of public awareness of environmental issues and problems, and can be influenced by nongovernmental and international organizations. To be successful, the change must take account of the institutional context within which the new ways of working operate. The public must also be involved and environmental education undertaken if there are to be lasting benefits. A clear view of the scope

and objectives of the change is necessary, as is the identification of all of the resources, human and material, which will be required and of how these are to be provided. For small island states, regional and international training or cooperation is particularly important. The United Nations Commission on sustainable Development should recommend changes in public administration systems for sustainable development along the lines recommended by the Seminar.

## II. ORGANIZATION AND MANAGEMENT CHALLENGES FOR SUSTAINABLE DEVELOPMENT

### SUSTAINABLE GOVERNANCE

24. The purpose of this session has been to explore the challenge to public administrators for improving infrastructure and protecting the environment through sustainable development. Traditional forms of government and public administration were not designed to meet these objectives. The recommendations of Agenda 21 are an emerging and still latent paradigm; the implications of how sustainable development will affect traditional forms of management and organization are still not completely understood. While Agenda 21 contains some of the elements of what this paradigm will require, at a practical level, many recommendations have to be further developed. Once the political will is present to govern sustainably, changes in organization and management will act to catalyze the rate of change, as well as to improve the coordination of activities between government institutions. These modifications will have to be complemented by similar changes in the private sector and by a more active and open process of development which actually involves civil society.

### TRADITIONAL FORMS OF ORGANIZATION

25. Traditional forms of public administration organization have these limitations:

(a) are sectoral based and do not promote vertical flow of information, integrated and trans-sectoral thinking or holistic responses;

(b) compartmentalize various groups and their functions;

(c) do not always allow decisions about environmental protection to be made by appropriate levels of government (municipal, provincial/state, national, international) which may or may not be capable of dispassionate decisions for the common good;

(d) created organizational forms that have difficulty adapting to changing circumstances;

(e) have resulted in the formation of environmental line agencies which do not have the power or resources to enforce existing regulations and are marginalized from providing trans-sectoral guidance to other agencies where it is needed;

(f) do not allow public administrators to carry out innovative forms of financing. budgeting and general resource allocation;

(g) tend toward mechanistic/ritualistic applications and approaches to carrying out their functions rather than being effective; and

(h) lack systems to prevent or avert corrupt practices.

26. Examples of these inefficiencies were cited in a number of countries from various regions of the world. Creating an enabling environment to stimulate sustainable development can no longer be entrusted to unreformed administrative structures. Excessive foreign debt has also negatively affected the ability to develop infrastructure and protect the environment in may States.

## ORGANIZATIONAL REQUIREMENTS FOR SUSTAINABLE DEVELOPMENT

27. There are a number of changes which will allow institutions to more effectively carry out their functions. Innovative ways of thinking about organizations may help develop a range of institutions and procedures capable of responding to, and providing for, different needs. Sustainable development requires that:

(a) organizations carry out planning and development exercises based upon a set of common principles, regardless of what sector they are responsible for - these principles could be coordinated by a central agency responsible for ensuring the sustainability of all line agency activities;

(b) no one agency be placed with the sole responsibility of "managing" the environment and sustainable development- this recognizes the trans-sectoral implication of environmentally based development principles (each department should have its own environmental bureau);

(c) a higher degree of coordination take place between all levels and sectors of government within each country;

(d) a central and line agency be developed to effectively coordinate the realization of sustainable objectives;

(e) some specific tasks such as the protection and conservation of the natural environment, habitat and parks are line agency functions under the mandate of an environmental department while sustainable development policies and regulations are often assigned to a central agency;

(f) trans-boundary environmental issues, involve the cooperation of local, regional, and global levels of administration; and

(g) government coordinates its activities within departments as well as with society.

## PRIVATE AND PUBLIC SECTOR PROVISION OF SERVICES

28. Governments can be more efficient by being (i) catalytic, (ii) community owned, (iii) competitive, (iv) mission oriented, (v) enterprising, (vi) anticipatory, (vii) decentralized, and (viii) market oriented.
Just how these approaches are applied will depend on the specific function or purpose to be carried out. New forms of management also suggest that governments can realize higher efficiencies by providing direction to private enterprise for the delivery of services formerly provided by the public sector. For this to be effective, principles will have to be developed to delineate what types of decisions and services can most appropriately be delivered by government and the private sector. Each level of government should make objective decisions guided by principles and goals for sustainable development and not pursue unsustainable, limited or parochial interests.

## MANAGEMENT CONSIDERATIONS

29. In terms of management there is a great need to provide transparency to the decision making processes. Decision makers must be made accountable for their actions as well as for the provision of services they are responsible for. Technical expertise must also be made available within each department. Limiting factors to more effective and efficient management include: (i) poor office infrastructure, (ii) low salaries, (iii) jobs-for-life, (iv) lack of performance evaluations, (v) lack of mission, and (vi) lack of skills upgrade on a regular basis for employees. In short, a more efficient civil service is required. To this end, donor agencies and the United Nations should encourage innovative results oriented public management.

30. Ultimately a number of factors will determine the most effective type of management in a given country including:

(a) the ability of the private sector to provide services required by society (this is limited or non existent in many poor countries).

(b) the skill level of public servants for operating in technical areas of environmental management;

(c) technologies available for carrying out certain tasks such as monitoring, communication, etc;

(d) the cultural context and local value systems (hierarchical versus non-hierarchical societies);

(e) the political commitment to support the functions of the organization being established;

(f) the instruments available to make appropriate policies;

(g) evaluative resources to determine whether the appropriate decisions have been made; and

(h) financial resources ultimately determine the types of management at local, regional, and national levels.

## CATALYTIC/MARKET APPROACHES TO ENVIRONMENTAL MANAGEMENT

31. Classic approaches to environmental management involved enforcement of regulations. Compliance can also be complemented by a range of incentives coordinated by central government to achieve sustainable development. Principal types of tax instruments include environmental charges and tax incentives. Non-tax instruments for effecting change include tradeable permits, user charges deposit refund systems, and subsidies. Finally, a number of non-economic incentives also exist to modify behavior. These include communicating and publishing information as well as education.

## FORM TO REFLECT FUNCTION

32. In face of increasingly diminishing budgets public administrators today face the simultaneous challenge of:

(a) organizing and managing themselves more efficiently and effectively to meet the challenges of deficit reductions; as well as

(b) shifting the emphasis of their tasks trop one being a development paradigm dominated by economic growth to a more holistic one of sustainable development.

33. New forms of government and public administration will require organizational structures and innovative approaches to management which ensure transparency of process, accountability, efficiency in the delivery of services, and more effective guidance to the private sector to achieve sustainable goals. One guiding principle for who should make what types of decisions should be the ability of any one administrative body or level of government to make the most objective decision on a particular environmental issue.

## III. IMPLEMENTATION, EVALUATION AND FEEDBACK SYSTEMS

34. The purpose of this session has been to explore how Government and public administration can establish and enhance the efficiency of environmental protection needed for sustainable development. A range of options exists for implementing and evaluating the effectiveness of systems for protecting the environment.

### THE BASIC REQUIREMENTS

35. Prerequisites for all such systems are as follows:

(a) establishing means to collect base-line data about the conditions of the environment and public health;

(b) to identify conditions showing positive or negative trends;

(c) to make public the data and reports about the trends; and

(d) to provide this data to public and private sectors and civil society in general.

36. Fundamental to implementing the means to meet these prerequisites is having a stable rule of law reflecting the reality that all, including the weakest, are equal under the law and none, including the strongest, is above the law. Without a stable legal framework for an efficient civil service, an independent judiciary, and sound administration of the norms selected to maintain the public health and to protect the environment, there will not be sustainable development.

### LOCAL AUTHORITIES

37. In protecting the environment, the participation and cooperation of local authorities is a determining factor for attaining sustainable development. Local authorities must be trained and oriented about options available to them for protecting the environment.

38. In addition to the roles that central public administrations play in coordinating services for sustainability, the local authorities can also work to coordinate housing, public works, schools and universities, businesses, and civic, cultural and religious organizations in planning for implementing the systems for sustainable development. Local infrastructure needs can be met through planning, including even locally 'financed" projects through contributions or levies on labor and materials. Government and public administration should provide training and capacity building for local authorities in implementing environmental protection measures which the local authority identifies as a priority.

## METHODOLOGIES

39. A range of methods exist whereby public administration may implement and evaluate environmental protection. These include the adoption and enforcement of framework environmental laws integrating sectorial legislation in water or air pollution, soil contamination or erosion, drinking or ground water quality, protection of flora and fauna, and ensuring the public health. Such laws require wide-spread public debate prior to their revision and adoption, and need to reflect the cultural and social values of the people in the jurisdiction where they are to be adopted, or else the laws will lack consensus and public support needed for their effective implementation.

40. Environmental protection systems at all levels should be based on principles of transparency and accountability. Public disclosure of applications for environmental licenses, permits or contracts permits all potentially affected environmental interests to participate in decisions affecting them. Public disclosure discourages biased or corrupt transactions. When the official responsible for decisions must personally and publicly announce a decision, there is a greater likelihood that an open and honest effort will be made to ensure environmental protection.

41. Implementation should be effective, accomplished at an efficient level of cost, and be corrected as necessary by use of routine feed-back procedures such as readily available administrative appeals. The procedures for doing so include, inter alia, use of:

(a) National Environmental Action Plans;

(b) National Conservation Strategies;

(c) Environmental Impact Assessment (EIA) at all levels of government;

(d) Local "Agenda 21" plans;

(e) Monitoring of environmental conditions and the gathering of data;

(f) Systems to incorporate environmental information into decision-making and to provide feed-back to government and public administration about the consequences of those decisions;

(g) Systems of permits to ensure that environmental norms are attained, including inspections, recording violations, issuing warnings, and administrative or judicial prosecution;

(h) Criminal sanctions where appropriate;

(i) Insurance systems and civil liability procedures to repair environmental damage or compensate for losses;

(j) tax instruments such as environmental charges, user fees, tax credits, exemptions or reductions;

(k) Recycling and deposit refund systems;

(l) Positive incentives for both public and private enterprises, for self-monitoring their compliance with applicable environmental laws;

(m) Active use of public advisory committees and public meetings to encourage environmental protection;

(n) Provisions for transnational corporations to meet, as a minimum, the environmental standards required at the location of their headquarters.

42. In employing environmental self-audits, care must be taken to ensure that auditing standards including the scope of the audit, and the qualifications of auditors are well defined .

43. Infrastructure should be provided for all parts of the community if it is to be sustainable. Poor areas should be involved in design and establishment of their infrastructure needs, and the costs of servicing these areas should be met by the community as a whole reflecting the principle of solidarity. When designing and constructing sewage treatment, water purification and other infrastructure to provide environmental protection services to the community, the costs of bonds or other financing means for doing so should be amortized over the life-time of the infrastructure through user-fees, taxes or other means, wherever the economy permits such financing.

44. Environmental education and the training of public administrators and civil society in general in these techniques and options for environmental protection is a very high priority. Without indigenous expertise, the use of such systems will not advance on a sustainable basis.

## ECONOMIC MECHANISMS

45. The relationship between environmental quality and economic development is a complex and a challenging one, with implications at both the macro-level and micro level.

46. At the macro-level, traditional indicators such as Gross National Product (GNP) and Gross Domestic Product (GDP) are increasingly being recognized as poor indicators of a nation's welfare, and efforts are underway to develop new indices such as the Human Development Index (HDI) to better quantify a nation's well-being. As part of these new efforts, there are also proposals to modify the Systems of National Accounts (SNA) to account for environmental factors.

47. At the micro-level, traditional forms of command/control technology-based pollution regulation are being modified, and many countries are beginning to adopt economic mechanisms which force individual polluters to internalize their external environment costs, through both price-base (e.g., pollution tax) and quantity-based (e.g. marketable permit) approaches. Such approaches potentially have important implications for addressing such global concerns as greenhouse gas emissions; but the Interregional Seminar believes that the following factors must be addressed.

## POSITIVE ASPECTS OF ECONOMIC-BASED PROGRAMS

48. Economic-based mechanisms for environmental protection can provide the following:

(a) Such programs can be economically efficient, and therefore minimize pollution control costs;

(b) Such efficiency provides governments with the potential opportunity to set more aggressive environmental protection goals;

(c) Such programs can focus governmental attention and public administration resources towards collective choice decisions (e.g., the setting of overall environmental goals), and minimizes efforts in day-by-day pollution control decisions.

(d) Such programs encourage technological innovation, provide incentives to minimize and prevent pollution, and lead to development of cleaner technology;

(e) Such programs are compatible with the Polluter Pays Principle, and the funds collected from such mechanisms can be employed towards the public good.

## ROLE OF PUBLIC ADMINISTRATORS

49. While such programs may be efficient, they can introduce considerable administrative burdens for public administrators. These systems depend on having efficiently collected environmental information and on environmental legislation and regulations, and such environmental infrastructure is not yet in place in many countries. These systems should include provisions for the following: identification of the polluters and specific quantities of pollutants; indicators which identify the environmental impact of such pollution; technical expertise concerning the options available for pollution control or prevention measures; adequate environmental reporting systems; and adequate legal and regulatory functions in the field of environmental protection. The ability of public administrators to implement economic-based programs where such systems do not exist is problematic. The number of States able to make use of economic-based programs is currently unknown and requires study.

## EXPERIENCE

50. While there have been numerous applications of such techniques employed in the developed world, little attention has been paid towards their applicability in developing countries. The developing world is likely to experience many implementation concerns associated with resource constraints. Comparable tests of economic-based programs under such conditions would provide a valuable testing ground for public administration, prior to the development of international treaties calling for their development on a global basis.

## JOINT IMPLEMENTATION

51. The Convention on Climate Modification provides, in Article IV, for the joint implementation (JI) of projects to link in a complementary and mutually beneficial way the undertakings of different regions, including between developed and developing countries. Such projects may be seen in an economics-based context (i.e., the initial testing ground for the introduction of economic-based mechanisms into developing countries). The establishment of such JI programmes should also provide training/instruction for public administrators in both the theory and use of such economic approaches, and the administrative characteristics of their implementation.

## EQUITY AND SOCIAL JUSTICE CHARACTERISTICS

52. All economic programs have equity as well as efficiency characteristics, and the explicit definition of distributional characteristics - on both an international and domestic basis - is a key consideration in their implementation. Efforts undertaken for sustainable development must expressly address the need for social justice, and equity concerns must be included in the design of economic-based mechanisms along with public administration factors such as program complexity, transparency, and ultimate effectiveness.

## INTERNATIONAL SUPPORT

53. The introduction of economic-based mechanisms for environmental protection represents a significant change, and one not undertaken lightly in countries whose current economic and environmental resources are already under considerable stress. Economic efficiency is an important characteristic for countries with limited resources for environmental spending. However, the numerous public administration constraints discussed are very real, and must be addressed. Since the global basis of many environmental concerns is now clear, it is imperative that international efforts to address these concerns provide information, training and other development support for the public administrators who must ultimately implement them.

## CONCLUSION

54. The roles of Government and public administration to ensure that present and future generations may enjoy their right to a balanced and healthy environment are a fundamental component of sustainable development. The Seminar concluded with the hopes that the United Nations General Assembly may find these considered recommendations to be useful, and that the Resumed 50th Session of the General Assembly may be celebrated for launching a renewed world-wide effort to strengthen public administration.

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